



72715 Supp..ST25.txt
SEQUENCE LISTING

<110> Morrell, Matthew
Li, Zhongyi
Rahman, Sadequr
Appels, Rudolph

<120> GENES ENCODING WHEAT STARCH SYNTHASES AND USES THEREFOR

<130> 72715Supplemental

<140> 10/018,418

<141> 2002-05-09

<160> 59

<170> PatentIn version 3.1

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Pro Gly Tyr Leu Trp Glu Leu Lys Thr Val Glu Gly Gly Trp Gly Leu 545		
cac gac atc ata cgg cag aac gac tgg aag acc cgc ggc atc gtg aac	1858	
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Gly Asp Val Pro Leu Leu 615 Gly Phe Ile Gly Arg 620 Leu Asp Gly Gln Lys 625		
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Val Gln Leu Val 645 Met Leu Gly Thr 650 Arg His Asp Leu Glu Gly Met		
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Leu Arg His 660 Phe Glu Arg Glu His 665 His Asp Lys Val Arg Gly Trp Val 670		
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Gly Phe 675 Ser Val Arg Leu Ala His Arg Ile Thr Ala Gly Ala Asp Ala		
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Arg Asp Thr Val 725 Pro Pro Phe Asp Pro 730 Phe Asn His Ser Gly Leu Gly		
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Trp Thr Phe 740 Asp Arg Ala Glu Ala 745 Gln Lys Leu Ile Glu Ala Leu Gly 750		

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 770 775 780 785
 ctc tac gag gac gtc ctc gtc aag gcc aag tac cag tgg tgaacgctag 2579
 Leu Tyr Glu Asp Val Leu Val Lys Ala Lys Tyr Gln Trp
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 Asp Ala Gly Ile Asp Asp Ala Ala Pro Ala Arg Gln Pro Arg Ala Leu
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 Thr Leu Asp Arg Asp Ala Ala Glu Gly Gly Ala Pro Ser Pro Pro Ala

100

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145 150 155 160

Val Pro Val Asn Gly Glu Asn Lys Ala Asn Val Ala Ser Pro Pro Thr
165 170 175

Ser Ile Ala Glu Val Ala Ala Pro Asp Pro Ala Ala Thr Ile Ser Ile
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Ser Asp Lys Ala Pro Glu Ser Val Val Pro Ala Glu Lys Ala Pro Pro
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Ser Ser Gly Ser Asn Phe Val Pro Ser Ala Ser Ala Pro Gly Ser Asp
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Thr Val Ser Asp Val Glu Leu Glu Leu Lys Lys Gly Ala Val Ile Val
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Lys Glu Ala Pro Asn Pro Lys Ala Leu Ser Pro Pro Ala Ala Pro Ala
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325 330 335

Ala Lys Arg Gly His Arg Val Met Val Val Val Pro Arg Tyr Gly Asp
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Tyr Glu Glu Ala Tyr Asp Val Gly Val Arg Lys Tyr Tyr Lys Ala Ala
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Gly Gln Asp Met Glu Val Asn Tyr Phe His Ala Tyr Ile Asp Gly Val
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 385 390 395 400

Ile Tyr Gly Gly Ser Arg Gln Glu Ile Met Lys Arg Met Ile Leu Phe
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Pro Tyr Gly Asp Gly Asn Leu Val Phe Ile Ala Asn Asp Trp His Thr
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 515 520 525

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 530 535 540

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 545 550 555 560

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 565 570 575

Lys Ser Asp Gly Tyr Thr Asn Phe Ser Leu Gly Thr Leu Asp Ser Gly
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645 650 655

Met Leu Arg His Phe Glu Arg Glu His His Asp Lys Val Arg Gly Trp
660 665 670

Val Gly Phe Ser Val Arg Leu Ala His Arg Ile Thr Ala Gly Ala Asp
675 680 685

Ala Leu Leu Met Pro Ser Arg Phe Glu Pro Cys Gly Leu Asn Gln Leu
690 695 700

Tyr Ala Met Ala Tyr Gly Thr Val Pro Val Val His Ala Val Gly Gly
705 710 715 720

Leu Arg Asp Thr Val Pro Pro Phe Asp Pro Phe Asn His Ser Gly Leu
725 730 735

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740 745 750

Gly His Cys Leu Arg Thr Tyr Arg Asp Tyr Lys Glu Ser Trp Arg Gly
755 760 765

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90                               95                               100

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155                               160                               165

aaa gct aac gtc gcc tcg ccg ccg acg agc ata gcc gag gtc gtg gct      640
Lys Ala Asn Val Ala Ser Pro Pro Thr Ser Ile Ala Glu Val Val Ala
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Pro	Trp	His	Val	Pro	Cys	Gly	Gly	Val	Pro	Tyr	Gly	Asp	Gly	Asn	Leu					
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Val	Phe	Ile	Ala	Asn	Asp	Trp	His	Thr	Ala	Leu	Leu	Pro	Val	Tyr	Leu					
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Lys	Ala	Tyr	Tyr	Arg	Asp	His	Gly	Leu	Met	Gln	Tyr	Thr	Arg	Ser	Ile		
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Met	Val	Ile	His	Asn	Ile	Ala	His	Gln	Gly	Arg	Gly	Pro	Val	Asp	Glu		
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Phe	Pro	Phe	Thr	Glu	Leu	Pro	Glu	His	Tyr	Leu	Glu	His	Phe	Arg	Leu		
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Tyr	Asp	Pro	Val	Gly	Gly	Glu	His	Ala	Asn	Tyr	Phe	Ala	Ala	Gly	Leu		
505				510						515					520		
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Lys	Met	Ala	Asp	Gln	Val	Val	Val	Val	Ser	Pro	Gly	Tyr	Leu	Trp	Glu		
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Leu	Lys	Thr	Val	Glu	Gly	Gly	Trp	Gly	Leu	His	Asp	Ile	Ile	Arg	Gln		
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aac	gac	tgg	aag	acc	cgc	ggc	atc	gtc	aac	ggc	atc	gac	aac	atg	gag	1792	
Asn	Asp	Trp	Lys	Thr	Arg	Gly	Ile	Val	Asn	Gly	Ile	Asp	Asn	Met	Glu		
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Trp	Asn	Pro	Glu	Val	Asp	Val	His	Leu	Lys	Ser	Asp	Gly	Tyr	Thr	Asn		
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Phe	Ser	Leu	Gly	Thr	Leu	Asp	Ser	Gly	Lys	Arg	Gln	Cys	Lys	Glu	Ala		
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gac	gcc	atg	ccc	tgg	atc	gtg	agc	cag	gac	gtg	cag	ctg	gtc	atg	ctg	2032	
Asp	Ala	Met	Pro	Trp	Ile	Val	Ser	Gln	Asp	Val	Gln	Leu	Val	Met	Leu		
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ggc	acc	ggc	cgc	cac	gac	ctg	gag	agc	atg	ctg	cgg	cac	ttc	gag	cgg	2080	
Gly	Thr	Gly	Arg	His	Asp	Leu	Glu	Ser	Met	Leu	Arg	His	Phe	Glu	Arg		
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Glu	His	His	Asp	Lys	Val	Arg	Gly	Trp	Val	Gly	Phe	Ser	Val	Arg	Leu		
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gcg	cac	cgg	atc	acg	gcg	ggc	gcc	gac	gcg	ctc	ctc	atg	ccc	tcc	cgg	2176	
Ala	His	Arg	Ile	Thr	Ala	Gly	Ala	Asp	Ala	Leu	Leu	Met	Pro	Ser	Arg		
				685					690					695			
ttc	gag	ccg	tgc	ggg	ttg	aac	cag	ctt	tac	gcc	atg	gcc	tac	ggc	acc	2224	
Phe	Glu	Pro	Cys	Gly	Leu	Asn	Gln	Leu	Tyr	Ala	Met	Ala	Tyr	Gly	Thr		
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gtc ccc gtc gtg cac gcc gtc ggc ggg gtg agg gac acc gtg ccg ccg 2272
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 715 720 725
 ttc gac ccc ttc aac cac tcc ggc ctc ggg tgg acg ttc gac cgc gcc 2320
 Phe Asp Pro Phe Asn His Ser Gly Leu Gly Trp Thr Phe Asp Arg Ala
 730 735 740
 gag gcg cac aag ctg atc gag gcg ctc ggg cac tgc ctc cgc acc tac 2368
 Glu Ala His Lys Leu Ile Glu Ala Leu Gly His Cys Leu Arg Thr Tyr
 745 750 755 760
 cgg gac tac aag gag agc tgg agg ggc ctc cag gag cgc ggc atg tgc 2416
 Arg Asp Tyr Lys Glu Ser Trp Arg Gly Leu Gln Glu Arg Gly Met Ser
 765 770 775
 cag gac ttc agc tgg gag cat gcc gcc aag ctc tac gag gac gtc ctc 2464
 Gln Asp Phe Ser Trp Glu His Ala Ala Lys Leu Tyr Glu Asp Val Leu
 780 785 790
 ctc aag gcc aag tac cag tgg tgaacgctag ctgctagccg ctccagcccc 2515
 Leu Lys Ala Lys Tyr Gln Trp
 795
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 gacgctgatt ccgatctcga tctgggtccgt agcagagtag agcggacgta gggaagcgct 2695
 ccttgttgca ggtatatggg aatgtttgtca acttggtatt gtagtttgct atgtttgatg 2755
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 35 40 45
 Arg Thr Ala Arg Asp Gly Gly Val Ala Ala Arg Ala Ala Gly Lys Lys
 50 55 60

Asp Ala Arg Val Asp Asp Asp Ala Ala Ser Ala Arg Gln Pro Arg Ala
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 Arg Arg Gly Gly Ala Ala Thr Lys Val Ala Glu Arg Arg Asp Pro Val
 85 90 95
 Lys Thr Leu Asp Arg Asp Ala Ala Glu Gly Gly Ala Pro Ala Pro Pro
 100 105 110
 Ala Pro Arg Gln Asp Ala Ala Arg Pro Pro Ser Met Asn Gly Thr Pro
 115 120 125
 Val Asn Gly Glu Asn Lys Ser Thr Gly Gly Gly Gly Ala Thr Lys Asp
 130 135 140
 Ser Gly Leu Pro Ala Pro Ala Arg Ala Pro His Pro Ser Thr Gln Asn
 145 150 155 160
 Arg Val Pro Val Asn Gly Glu Asn Lys Ala Asn Val Ala Ser Pro Pro
 165 170 175
 Thr Ser Ile Ala Glu Val Val Ala Pro Asp Ser Ala Ala Thr Ile Ser
 180 185 190
 Ile Ser Asp Lys Ala Pro Glu Ser Val Val Pro Ala Glu Lys Pro Pro
 195 200 205
 Pro Ser Ser Gly Ser Asn Phe Val Val Ser Ala Ser Ala Pro Arg Leu
 210 215 220
 Asp Ile Asp Ser Asp Val Glu Pro Glu Leu Lys Lys Gly Ala Val Ile
 225 230 235 240
 Val Glu Glu Ala Pro Asn Pro Lys Ala Leu Ser Pro Pro Ala Ala Pro
 245 250 255
 Ala Val Gln Glu Asp Leu Trp Asp Phe Lys Lys Tyr Ile Gly Phe Glu
 260 265 270
 Glu Pro Val Glu Ala Lys Asp Asp Gly Trp Ala Val Ala Asp Asp Ala
 275 280 285
 Gly Ser Phe Glu His His Gln Asn His Asp Ser Gly Pro Leu Ala Gly
 290 295 300
 Glu Asn Val Met Asn Val Val Val Val Ala Ala Glu Cys Ser Pro Trp
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305

310

320

Cys Lys Thr Gly Gly Leu Gly Asp Val Ala Gly Ala Leu Pro Lys Ala
325 330 335

Leu Ala Lys Arg Gly His Arg Val Met Val Val Val Pro Arg Tyr Gly
340 345 350

Asp Tyr Glu Glu Ala Tyr Asp Val Gly Val Arg Lys Tyr Tyr Lys Ala
355 360 365

Ala Gly Gln Asp Met Glu Val Asn Tyr Phe His Ala Tyr Ile Asp Gly
370 375 380

Val Asp Phe Val Phe Ile Asp Ala Pro Leu Phe Arg His Arg Gln Glu
385 390 395 400

Asp Ile Tyr Gly Gly Ser Arg Gln Glu Ile Met Lys Arg Met Ile Leu
405 410 415

Phe Cys Lys Ala Ala Val Glu Val Pro Trp His Val Pro Cys Gly Gly
420 425 430

Val Pro Tyr Gly Asp Gly Asn Leu Val Phe Ile Ala Asn Asp Trp His
435 440 445

Thr Ala Leu Leu Pro Val Tyr Leu Lys Ala Tyr Tyr Arg Asp His Gly
450 455 460

Leu Met Gln Tyr Thr Arg Ser Ile Met Val Ile His Asn Ile Ala His
465 470 475 480

Gln Gly Arg Gly Pro Val Asp Glu Phe Pro Phe Thr Glu Leu Pro Glu
485 490 495

His Tyr Leu Glu His Phe Arg Leu Tyr Asp Pro Val Gly Gly Glu His
500 505 510

Ala Asn Tyr Phe Ala Ala Gly Leu Lys Met Ala Asp Gln Val Val Val
515 520 525

Val Ser Pro Gly Tyr Leu Trp Glu Leu Lys Thr Val Glu Gly Gly Trp
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Gly Leu His Asp Ile Ile Arg Gln Asn Asp Trp Lys Thr Arg Gly Ile
545 550 555 560

Val Asn Gly Ile Asp Asn Met Glu Trp Asn Pro Glu Val Asp Val His
565 570 575

Leu Lys Ser Asp Gly Tyr Thr Asn Phe Ser Leu Gly Thr Leu Asp Ser
580 585 590

Gly Lys Arg Gln Cys Lys Glu Ala Leu Gln Arg Glu Leu Gly Leu Gln
595 600 605

Val Arg Ala Asp Val Pro Leu Leu Gly Phe Ile Gly Arg Leu Asp Gly
610 615 620

Gln Lys Gly Val Glu Ile Ile Ala Asp Ala Met Pro Trp Ile Val Ser
625 630 635 640

Gln Asp Val Gln Leu Val Met Leu Gly Thr Gly Arg His Asp Leu Glu
645 650 655

Ser Met Leu Arg His Phe Glu Arg Glu His His Asp Lys Val Arg Gly
660 665 670

Trp Val Gly Phe Ser Val Arg Leu Ala His Arg Ile Thr Ala Gly Ala
675 680 685

Asp Ala Leu Leu Met Pro Ser Arg Phe Glu Pro Cys Gly Leu Asn Gln
690 695 700

Leu Tyr Ala Met Ala Tyr Gly Thr Val Pro Val Val His Ala Val Gly
705 710 715 720

Gly Val Arg Asp Thr Val Pro Pro Phe Asp Pro Phe Asn His Ser Gly
725 730 735

Leu Gly Trp Thr Phe Asp Arg Ala Glu Ala His Lys Leu Ile Glu Ala
740 745 750

Leu Gly His Cys Leu Arg Thr Tyr Arg Asp Tyr Lys Glu Ser Trp Arg
755 760 765

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Ala Ser Ala Pro Gly Ser Asp Thr Val Ser Asp Val Glu Gln Glu Leu	
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aag aag ggt gcg gtc gtt gtc gaa gaa gct cca aag cca aag gct ctt	144
Lys Lys Gly Ala Val Val Val Glu Glu Ala Pro Lys Pro Lys Ala Leu	
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tcg ccg cct gca gcc ccc gct gta caa gaa gac ctt tgg gat ttc aag	192
Ser Pro Pro Ala Ala Pro Ala Val Gln Glu Asp Leu Trp Asp Phe Lys	
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aaa tac att ggt ttc gag gag ccc gtg gag gcc aag gat gat ggc cgg	240
Lys Tyr Ile Gly Phe Glu Glu Pro Val Glu Ala Lys Asp Asp Gly Arg	
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gct gtc gca gat gat gcg ggc tcc ttt gaa cac cac cag aat cac gac	288
Ala Val Ala Asp Asp Ala Gly Ser Phe Glu His His Gln Asn His Asp	
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tcc gga cct ttg gca ggg gag aat gtc atg aac gtg gtc gtc gtg gct	336
Ser Gly Pro Leu Ala Gly Glu Asn Val Met Asn Val Val Val Val Ala	
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Ala Glu Cys Ser Pro Trp Cys Lys Thr Gly Gly Leu Gly Asp Val Ala	
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Gly Ala Leu Pro Lys Ala Leu Ala Lys Arg Gly His Arg Val Met Val	
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Val Val Pro Arg Tyr Gly Asp Tyr Glu Glu Pro Thr Asp Val Gly Val	
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Arg Lys Tyr Tyr Lys Ala Ala Gly Gln Asp Met Glu Val Asn Tyr Phe	
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cat gct tat atc gat gga gtt gat ttt gtg ttc att gac gct cct ctc	576

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Phe	Arg	His	Arg	Glu	Glu	Asp	Ile	Tyr	Gly	Gly	Ser	Arg	Gln	Glu	Ile		
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His	Val	Pro	Cys	Gly	Gly	Val	Pro	Tyr	Gly	Asp	Gly	Asn	Leu	Val	Phe		
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Ile	Ala	Asn	Asp	Trp	His	Thr	Ala	Leu	Leu	Pro	Val	Tyr	Leu	Lys	Ala		
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Pro	Val	Gly	Gly	Glu	His	Ala	Asn	Tyr	Phe	Ala	Ala	Gly	Leu	Lys	Met		
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Gly Arg His Asp Leu Glu Ser Met Leu Gln His Phe Glu Arg Glu His	
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cac gac aag gtg cgc ggg tgg gtg ggg ttc tcc gtg cgc ctg gcg cac	1440
His Asp Lys Val Arg Gly Trp Val Gly Phe Ser Val Arg Leu Ala His	
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Arg Ile Thr Ala Gly Ala Asp Ala Leu Leu Met Pro Ser Arg Phe Val	
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Pro Cys Gly Leu Asn Gln Leu Tyr Ala Met Ala Tyr Gly Thr Val Pro	
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Val Val His Ala Val Gly Gly Leu Arg Asp Thr Val Pro Phe Asp	
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Pro Phe Asn His Ser Gly Leu Gly Trp Thr Phe Asp Arg Ala Glu Ala	
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Phe Ser Trp Glu His Ala Ala Lys Leu Tyr Glu Asp Val Leu Val Lys	
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 50 55 60
 Lys Tyr Ile Gly Phe Glu Glu Pro Val Glu Ala Lys Asp Asp Gly Arg
 65 70 75 80
 Ala Val Ala Asp Asp Ala Gly Ser Phe Glu His His Gln Asn His Asp
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 Ala Glu Cys Ser Pro Trp Cys Lys Thr Gly Gly Leu Gly Asp Val Ala
 115 120 125
 Gly Ala Leu Pro Lys Ala Leu Ala Lys Arg Gly His Arg Val Met Val
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 145 150 155 160
 Arg Lys Tyr Tyr Lys Ala Ala Gly Gln Asp Met Glu Val Asn Tyr Phe
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 His Ala Tyr Ile Asp Gly Val Asp Phe Val Phe Ile Asp Ala Pro Leu
 180 185 190
 Phe Arg His Arg Glu Glu Asp Ile Tyr Gly Gly Ser Arg Gln Glu Ile
 195 200 205
 Met Lys Arg Met Ile Leu Phe Cys Lys Ala Ala Val Glu Val Pro Trp
 210 215 220
 His Val Pro Cys Gly Gly Val Pro Tyr Gly Asp Gly Asn Leu Val Phe
 225 230 235 240

Ile Ala Asn Asp Trp His Thr Ala Leu Leu Pro Val Tyr Leu Lys Ala
 245 250 255

Tyr Tyr Arg Asp His Gly Leu Met Gln Tyr Thr Arg Ser Ile Met Val
 260 265 270

Ile His Asn Ile Ala His Gln Gly Arg Gly Pro Val Asp Glu Phe Pro
 275 280 285

Phe Thr Glu Leu Pro Glu His Tyr Leu Glu His Phe Arg Leu Tyr Asp
 290 295 300

Pro Val Gly Gly Glu His Ala Asn Tyr Phe Ala Ala Gly Leu Lys Met
 305 310 315 320

Ala Asp Gln Val Val Val Val Ser Pro Gly Tyr Leu Trp Glu Leu Lys
 325 330 335

Thr Val Glu Gly Gly Trp Gly Leu His Asp Ile Ile Arg Gln Asn Asp
 340 345 350

Trp Lys Thr Arg Gly Ile Val Asn Gly Ile Asp Asn Met Glu Trp Asn
 355 360 365

Pro Glu Val Asp Ala His Leu Lys Ser Asp Gly Tyr Thr Asn Phe Ser
 370 375 380

Leu Arg Thr Leu Asp Ser Gly Lys Arg Gln Cys Lys Glu Ala Leu Gln
 385 390 395 400

Arg Glu Leu Gly Leu Gln Val Arg Ala Asp Val Pro Leu Leu Gly Phe
 405 410 415

Ile Gly Arg Leu Asp Gly Gln Lys Gly Val Glu Ile Ile Ala Asp Ala
 420 425 430

Met Pro Trp Ile Val Ser Gln Asp Val Gln Leu Val Met Leu Gly Thr
 435 440 445

Gly Arg His Asp Leu Glu Ser Met Leu Gln His Phe Glu Arg Glu His
 450 455 460

His Asp Lys Val Arg Gly Trp Val Gly Phe Ser Val Arg Leu Ala His
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Arg Ile Thr Ala Gly Ala Asp Ala Leu Leu Met Pro Ser Arg Phe Val
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Pro Cys Gly Leu Asn Gln Leu Tyr Ala Met Ala Tyr Gly Thr Val Pro
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Val Val His Ala Val Gly Gly Leu Arg Asp Thr Val Pro Pro Phe Asp
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Pro Phe Asn His Ser Gly Leu Gly Trp Thr Phe Asp Arg Ala Glu Ala
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His Lys Leu Ile Glu Ala Leu Gly His Cys Leu Arg Thr Tyr Arg Asp
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Phe Lys Glu Ser Trp Arg Ala Leu Gln Glu Arg Gly Met Ser Gln Asp
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 Ser Pro Leu Cys Pro Arg Ser Arg Gln Pro Leu Val Val Val Arg Pro
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 Ala Gly Arg Gly Gly Leu Thr Gln Pro Phe Leu Met Asn Gly Arg Phe
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Val	Tyr	Ser	Leu	Ser	Ser	Val	Met	Lys	Lys	Glu	Val	Asp	Ala	Ala	Asp	
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Gln	Glu	Thr	Leu	Arg	Ser	Val	Ile	Val	Asp	Val	Met	Asp	His	Asn	Gly	
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agt Ser 345	gcg Ala	ccg Pro	atg Met	tgg Trp	gat Asp 350	gca Ala	att Ile	gat Asp	gaa Glu	acc Thr 355	gtg Val	gct Ala	gat Asp	caa Gln	gac Asp 360	1108
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gct Ala	aaa Lys	aca Thr	ggt Gly	gta Val 445	agt Ser	ttg Leu	aat Asn	cct Pro	gag Glu 450	ctg Leu	cga Arg	ctt Leu	gtc Val	agg Arg 455	gtt Val	1396
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tca Ser	att Ile	gtt Val	agt Ser	gtc Val 525	act Thr	gag Glu	caa Gln	aag Lys	cag Gln 530	tcc Ser	ata Ile	gtt Val	gga Gly	ttc Phe 535	cgt Arg	1636
agt Ser	caa Gln	gat Asp	ctt Leu	tcg Ser	gct Ala	gtt Val	agt Ser	ctc Leu	cct Pro	aaa Lys	caa Gln	aac Asn	gta Val	cca Pro	att Ile	1684

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Ile	Lys 890	Lys	Lys	Lys	Leu	Gln 895	Ser	Met	Leu	Ser	Leu 900	Ala	Arg	Thr	Cys	
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Ala	Arg	Gln	Asp	Phe 1005	His	Ala	Ile	Leu	Pro 1010	Asn	Asn	Asn	Val	Thr 1015		
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ccc tct aac aca gtg cta aat gga aag tcg gag ggt tgg ttt aga	3343
Pro Ser Asn Thr Val Leu Asn Gly Lys Ser Glu Gly Trp Phe Arg	
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Cys Ser Phe Asn Leu Trp Met His Ser Ser Gly Ala Leu Pro Pro	
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Tyr His Ile Pro Val Ser Asp Ser Ile Glu Thr Glu Asn Tyr Met	
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Arg Ile Ile His Ile Ala Val Glu Met Ala Pro Val Ala Lys Val	
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Asp Leu Gly His Thr Val Glu Val Ile Leu Pro Lys Tyr Asp Cys	
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Pro	His	Ile	Ile	His	Cys	His	Asp	Trp	Ser	Ser	Ala	Pro	Val	Ala	
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Trp	Leu	Tyr	Lys	Glu	His	Tyr	Ser	Gln	Ser	Arg	Met	Ala	Ser	Thr	
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Pro	Thr	Tyr	Ser	Arg	Asp	Val	Ala	Gly	His	Gly	Ala	Ile	Ala	Pro	
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Cys	Glu	Asn	Val	Val	Glu	Gly	Lys	Arg	Ala	Ala	Lys	Arg	Ala	Leu	
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cag	cag	aag	ttt	gga	tta	cag	caa	act	gat	gtc	cct	att	gtc	gga	4333
Gln	Gln	Lys	Phe	Gly	Leu	Gln	Gln	Thr	Asp	Val	Pro	Ile	Val	Gly	
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atc	atc	acc	cgt	ctg	aca	gcc	cag	aag	gga	atc	cac	ctc	atc	aag	4378
Ile	Ile	Thr	Arg	Leu	Thr	Ala	Gln	Lys	Gly	Ile	His	Leu	Ile	Lys	
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cac	gca	att	cac	cga	act	ctc	gaa	agc	aac	gga	cat	gtg	gtt	ttg	4423
His	Ala	Ile	His	Arg	Thr	Leu	Glu	Ser	Asn	Gly	His	Val	Val	Leu	
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ctt	ggt	tca	gct	cca	gat	cat	cga	ata	caa	ggc	gat	ttt	tgc	aga	4468
Leu	Gly	Ser	Ala	Pro	Asp	His	Arg	Ile	Gln	Gly	Asp	Phe	Cys	Arg	
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ttg	gcc	gat	gct	ctt	cat	ggt	gtt	tac	cat	ggt	agg	gtg	aag	ctt	4513
Leu	Ala	Asp	Ala	Leu	His	Gly	Val	Tyr	His	Gly	Arg	Val	Lys	Leu	
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gtt	cta	acc	tat	gat	gag	cct	ctt	tct	cac	ctg	ata	tac	gct	ggc	4558
Val	Leu	Thr	Tyr	Asp	Glu	Pro	Leu	Ser	His	Leu	Ile	Tyr	Ala	Gly	
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Lys Thr Gly Gly Leu His Asp Thr Val Phe Asp Val Asp Asn Asp			
1545	1550	1555	
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Lys Asp Arg Ala Arg Ser Leu Gly Leu Glu Pro Asn Gly Phe Ser			
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ttc gac gga gcc gac agc aat ggc gtg gat tat gcc ctc aac aga			4783
Phe Asp Gly Ala Asp Ser Asn Gly Val Asp Tyr Ala Leu Asn Arg			
1575	1580	1585	
gca atc ggc gct tgg ttc gat gcc cgt gat tgg ttc cac tcc ctg			4828
Ala Ile Gly Ala Trp Phe Asp Ala Arg Asp Trp Phe His Ser Leu			
1590	1595	1600	
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Cys Lys Arg Val Met Glu Gln Asp Trp Ser Trp Asn Arg Pro Ala			
1605	1610	1615	
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Leu Asp Tyr Ile Glu Leu Tyr His Ala Ala Arg Lys Phe			
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<212> PRT

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 Met Val Ala Ser Ser Asp Pro Pro Asn Arg Lys Ser Arg Arg Met Val
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 Pro Pro Gln Val Lys Val Ile Ser Ser Arg Gly Tyr Thr Thr Arg Leu
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 Ile Val Glu Pro Ser Asn Glu Asn Thr Glu His Asn Asn Arg Asp Glu
 85 90 95
 Glu Thr Leu Asp Thr Tyr Asn Ala Leu Leu Ser Thr Glu Thr Ala Glu
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 Trp Thr Asp Asn Arg Glu Ala Glu Thr Ala Lys Ala Asp Ser Ser Gln
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 Asn Ala Leu Ser Ser Ser Ile Ile Gly Glu Val Asp Val Ala Asp Glu
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 Asp Ile Leu Ala Ala Asp Leu Thr Val Tyr Ser Leu Ser Ser Val Met
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 Lys Lys Glu Val Asp Ala Ala Asp Lys Ala Arg Val Lys Glu Asp Ala
 165 170 175
 Phe Glu Leu Asp Leu Pro Ala Thr Thr Leu Arg Ser Val Ile Val Asp
 180 185 190
 Val Met Asp His Asn Gly Thr Val Gln Glu Thr Leu Arg Ser Val Ile
 195 200 205
 Val Asp Val Met Asp His Asn Gly Thr Val Gln Glu Thr Leu Arg Ser
 210 215 220
 Val Ile Val Asp Val Met Asp Asp Ala Ala Asp Lys Ala Arg Val Glu
 225 230 235 240
 Glu Asp Val Phe Glu Leu Asp Leu Ser Gly Asn Ile Ser Ser Ser Ala
 245 250 255
 Thr Thr Val Glu Leu Asp Ala Val Asp Glu Val Gly Pro Val Gln Asp
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Lys Phe Glu Ala Thr Ser Ser Gly Asn Val Ser Asn Ser Ala Thr Val
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 Arg Glu Val Asp Ala Ser Asp Glu Ala Gly Asn Asp Gln Gly Ile Phe
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 Arg Ala Asp Leu Ser Gly Asn Val Phe Ser Ser Ser Thr Thr Val Glu
 305 310 315 320
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 325 330 335
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 Asp Glu Thr Val Ala Asp Gln Asp Thr Phe Glu Ala Asp Leu Ser Gly
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 385 390 395 400
 Glu Ser Gly His Glu Lys His Met Ala Val Asp Tyr Val Gly Glu Ala
 405 410 415
 Thr Asp Glu Glu Glu Thr Tyr Gln Gln Gln Tyr Pro Val Pro Ser Ser
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 Phe Ser Met Trp Asp Lys Ala Ile Ala Lys Thr Gly Val Ser Leu Asn
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 Ser Asp Lys Lys Asp Leu Ser Ile Asp Asp Leu Pro Gly Gln Asn Gln
 465 470 475 480
 Ser Ile Ile Gly Ser Tyr Lys Gln Asp Lys Ser Ile Ala Asp Val Ala
 485 490 495
 Gly Pro Thr Gln Ser Ile Phe Gly Ser Ser Lys Gln His Arg Ser Ile
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Thr Lys Gln Val Pro Val Val Asp Arg Gln Asp Ala Leu Tyr Val Asn
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Gly Leu Glu Ala Lys Glu Gly Asp His Thr Ser Glu Lys Thr Asp Glu
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Gln Ala Asp Arg Thr Gln Ala Val Glu Lys Lys Thr Trp Lys Lys Val
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Asp Glu Glu His Leu Tyr Met Thr Glu His Gln Lys Arg Ala Ala Glu
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Gly Gln Met Val Val Asn Glu Asp Glu Leu Ser Ile Thr Glu Ile Gly
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Met Gly Arg Gly Asp Lys Ile Gln His Val Leu Ser Glu Glu Glu Leu
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Ser Trp Ser Glu Asp Glu Val Gln Leu Ile Glu Asp Asp Gly Gln Tyr
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Glu Val Asp Glu Thr Ser Val Ser Val Asn Val Glu Gln Asp Ile Gln
 690 695 700

Gly Ser Pro Gln Asp Val Val Asp Pro Gln Ala Leu Lys Val Met Leu
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Gln Glu Leu Ala Glu Lys Asn Tyr Ser Met Arg Asn Lys Leu Phe Val
 725 730 735

Phe Pro Glu Val Val Lys Ala Asp Ser Val Ile Asp Leu Tyr Leu Asn
 740 745 750

Arg Asp Leu Thr Ala Leu Ala Asn Glu Pro Asp Val Val Ile Lys Gly
 755 760 765

Ala Phe Asn Gly Trp Lys Trp Arg Leu Phe Thr Glu Arg Leu His Lys
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770

775

780

Ser Asp Leu Gly Gly Val Trp Trp Ser Cys Lys Leu Tyr Ile Pro Lys
785 790 795 800

Glu Ala Tyr Arg Leu Asp Phe Val Phe Phe Asn Gly Arg Thr Val Tyr
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Glu Asn Asn Gly Asn Asn Asp Phe Cys Ile Gly Ile Glu Gly Thr Met
820 825 830

Asn Glu Asp Leu Phe Glu Asp Phe Leu Val Lys Glu Lys Gln Arg Glu
835 840 845

Leu Glu Lys Leu Ala Met Glu Glu Ala Glu Arg Arg Thr Gln Thr Glu
850 855 860

Glu Gln Arg Arg Arg Lys Glu Ala Arg Ala Ala Asp Glu Ala Val Arg
865 870 875 880

Ala Gln Ala Lys Ala Glu Ile Glu Ile Lys Lys Lys Lys Leu Gln Ser
885 890 895

Met Leu Ser Leu Ala Arg Thr Cys Val Asp Asn Leu Trp Tyr Ile Glu
900 905 910

Ala Ser Thr Asp Thr Arg Gly Asp Thr Ile Arg Leu Tyr Tyr Asn Arg
915 920 925

Asn Ser Arg Pro Leu Ala His Ser Thr Glu Ile Trp Met His Gly Gly
930 935 940

Tyr Asn Asn Trp Thr Asp Gly Leu Ser Ile Val Glu Ser Phe Val Lys
945 950 955 960

Cys Asn Asp Lys Asp Gly Asp Trp Trp Tyr Ala Asp Val Ile Pro Pro
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Glu Lys Ala Leu Val Leu Asp Trp Val Phe Ala Asp Gly Pro Ala Gly
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 Gly Pro Leu Leu Lys Ala Thr Val Asp Val Pro Pro Asp Ala Tyr
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 1220 1225 1230
 Leu His Leu Tyr Gln Ser Phe Ser Trp Gly Gly Thr Glu Ile Lys
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 Val Trp Val Gly Arg Val Glu Asp Leu Thr Val Tyr Phe Leu Glu
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	1280					1285					1290			
Ile	Leu	Gln	Asn	Glu	Phe	Ser	Pro	His	Ile	Ile	His	Cys	His	Asp
	1295					1300					1305			
Trp	Ser	Ser	Ala	Pro	Val	Ala	Trp	Leu	Tyr	Lys	Glu	His	Tyr	Ser
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Gln	Ser	Arg	Met	Ala	Ser	Thr	Arg	Val	Val	Phe	Thr	Ile	His	Asn
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	1355					1360					1365			
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	1370					1375					1380			
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	1385					1390					1395			
Phe	Ile	Pro	Val	Pro	Tyr	Thr	Cys	Glu	Asn	Val	Val	Glu	Gly	Lys
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	1415					1420					1425			
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	1430					1435					1440			
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 65 70 75 80
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 Ser Ile Thr Glu Ile Gly Met Gly Arg Gly Asp Lys Ile Gln His Val
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 Leu Ser Glu Glu Glu Leu Ser Trp Ser Glu Asp Glu Val Gln Leu Ile
 100 105 110
 gag gat gat gga caa tat gaa gtt gac gag acc tct gtg tcc gtt aac 384
 Glu Asp Asp Gly Gln Tyr Glu Val Asp Glu Thr Ser Val Ser Val Asn
 115 120 125
 gtt gaa caa gat atc cag ggg tca cca cag gat gtt gtg gat ccg caa 432
 Val Glu Gln Asp Ile Gln Gly Ser Pro Gln Asp Val Val Asp Pro Gln
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 Arg Asn Lys Leu Phe Val Phe Pro Glu Val Val Lys Ala Asp Ser Val
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 Ile Asp Leu Tyr Leu Asn Arg Asp Leu Thr Ala Leu Ala Asn Glu Pro
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 Asp Val Val Ile Lys Gly Ala Phe Asn Gly Trp Lys Trp Arg Leu Phe
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 Thr Glu Arg Leu His Lys Ser Asp Leu Gly Gly Val Trp Trp Ser Cys
 210 215 220

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gga Gly	ata Ile	gaa Glu	ggc Gly 260	act Thr	atg Met	aat Asn	gaa Glu	gat Asp 265	ctg Leu	ttt Phe	gag Glu	gat Asp	ttc Phe 270	ttg Leu	gtt Val	816
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caa Gln	gat Asp	ttc Phe 435	cat His	gct Ala	att Ile	ctt Leu	ccg Pro 440	aac Asn	aac Asn	aat Asn	gta Val	acc Thr 445	gag Glu	gaa Glu	ggc Gly	1344
ttc Phe	tgg Trp 450	gcg Ala	caa Gln	gag Glu	gag Glu	caa Gln 455	aac Asn	atc Ile	tat Tyr	aca Thr	agg Arg 460	ctt Leu	ctg Leu	caa Gln	gaa Glu	1392
agg Arg 465	aga Arg	gaa Glu	aag Lys	gaa Glu	gaa Glu 470	acc Thr	atg Met	aaa Lys	aga Arg	aag Lys 475	gct Ala	gag Glu	aga Arg	agt Ser	gca Ala 480	1440

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Pro Leu Leu Lys Ala Thr Val Asp Val Pro Pro Asp Ala Tyr Met Met	
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His	Ala	Ala	Arg	Lys	Phe												
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<211> 1059

<212> PRT

<213> Triticum aestivum

<220>

<221> misc_feature

<222> (507)..(507)

<223> The 'Xaa' at location 507 stands for Asp, Gly, Ala, or Val.

<220>

<221> misc_feature

<222> (1520)..(1520)

<223> n can be a or g or c or t, and the encoded amino acid cannot be a

ssigned with certainty.

<400> 10

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 Ser Glu Lys Thr Asp Glu Asp Ala Leu His Val Lys Phe Asn Val Asp
 20 25 30
 Asn Val Leu Arg Lys His Gln Ala Asp Arg Thr Gln Ala Val Glu Lys
 35 40 45
 Lys Thr Trp Lys Lys Val Asp Glu Glu His Leu Tyr Met Thr Glu His
 50 55 60
 Gln Lys Arg Ala Ala Glu Gly Gln Met Val Val Asn Glu Asp Glu Leu
 65 70 75 80
 Ser Ile Thr Glu Ile Gly Met Gly Arg Gly Asp Lys Ile Gln His Val
 85 90 95
 Leu Ser Glu Glu Glu Leu Ser Trp Ser Glu Asp Glu Val Gln Leu Ile
 100 105 110
 Glu Asp Asp Gly Gln Tyr Glu Val Asp Glu Thr Ser Val Ser Val Asn
 115 120 125
 Val Glu Gln Asp Ile Gln Gly Ser Pro Gln Asp Val Val Asp Pro Gln
 130 135 140
 Ala Leu Lys Val Met Leu Gln Glu Leu Ala Glu Lys Asn Tyr Ser Met
 145 150 155 160
 Arg Asn Lys Leu Phe Val Phe Pro Glu Val Val Lys Ala Asp Ser Val
 165 170 175
 Ile Asp Leu Tyr Leu Asn Arg Asp Leu Thr Ala Leu Ala Asn Glu Pro
 180 185 190
 Asp Val Val Ile Lys Gly Ala Phe Asn Gly Trp Lys Trp Arg Leu Phe
 195 200 205
 Thr Glu Arg Leu His Lys Ser Asp Leu Gly Gly Val Trp Trp Ser Cys
 210 215 220
 Lys Leu Tyr Ile Pro Lys Glu Ala Tyr Arg Leu Asp Phe Val Phe Phe
 225 230 235 240

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Asn Gly Arg Thr Val Tyr Glu Asn Asn Gly Asn Asn Asp Phe Cys Ile
 245 250 255
 Gly Ile Glu Gly Thr Met Asn Glu Asp Leu Phe Glu Asp Phe Leu Val
 260 265 270
 Lys Glu Lys Gln Arg Glu Leu Glu Lys Leu Ala Met Glu Glu Ala Glu
 275 280 285
 Arg Arg Thr Gln Thr Glu Glu Gln Arg Arg Arg Lys Glu Ala Arg Ala
 290 295 300
 Ala Asp Glu Ala Val Arg Ala Gln Ala Lys Ala Glu Ile Glu Ile Lys
 305 310 315 320
 Lys Lys Lys Leu Gln Ser Met Leu Ser Leu Ala Arg Thr Cys Val Asp
 325 330 335
 Asn Leu Trp Tyr Ile Glu Ala Ser Thr Asp Thr Arg Gly Asp Thr Ile
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 Arg Leu Tyr Tyr Asn Arg Asn Ser Arg Pro Leu Ala His Ser Thr Glu
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 Ile Trp Met His Gly Gly Tyr Asn Asn Trp Ser Asp Gly Leu Ser Ile
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 385 390 395 400
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 405 410 415
 Ala Asp Gly Pro Ala Gly Asn Ala Arg Asn Tyr Asp Asn Asn Ala Arg
 420 425 430
 Gln Asp Phe His Ala Ile Leu Pro Asn Asn Asn Val Thr Glu Glu Gly
 435 440 445
 Phe Trp Ala Gln Glu Glu Gln Asn Ile Tyr Thr Arg Leu Leu Gln Glu
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 Arg Arg Glu Lys Glu Glu Thr Met Lys Arg Lys Ala Glu Arg Ser Ala
 465 470 475 480
 Asn Ile Lys Ala Glu Met Lys Ala Lys Thr Met Arg Arg Phe Leu Leu
 485 490 495

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 Gly Thr Thr Val Asp Val Leu Tyr Asn Pro Ser Asn Thr Val Leu Asn
 515 520 525
 Gly Lys Ser Glu Gly Trp Phe Arg Cys Ser Phe Asn Leu Trp Met His
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 545 550 555 560
 Pro Leu Leu Lys Ala Thr Val Asp Val Pro Pro Asp Ala Tyr Met Met
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 645 650 655
 Leu Asn Gln Ser Ser Val Lys Asp Leu His Leu Tyr Gln Ser Phe Ser
 660 665 670
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 690 695 700
 Val Tyr Gly Arg Asn Asp Asp Arg Arg Phe Gly Phe Phe Cys His Ser
 705 710 715 720
 Ala Leu Glu Phe Ile Leu Gln Asn Glu Phe Ser Pro His Ile Ile His
 725 730 735
 Cys His Asp Trp Ser Ser Ala Pro Val Ala Trp Leu Tyr Lys Glu His
 Page 43

740

745

750

Tyr Ser Gln Ser Arg Met Ala Ser Thr Arg Val Val Phe Thr Ile His
755 760 765

Asn Leu Glu Phe Gly Ala His Tyr Ile Gly Lys Ala Met Thr Tyr Cys
770 775 780

Asp Lys Ala Thr Thr Val Ser Pro Thr Tyr Ser Arg Asp Val Ala Gly
785 790 795 800

His Gly Ala Ile Ala Pro His Arg Glu Lys Phe Tyr Gly Ile Leu Asn
805 810 815

Gly Ile Asp Pro Asp Ile Trp Asp Pro Tyr Thr Asp Asn Phe Ile Pro
820 825 830

Val Pro Tyr Thr Cys Glu Asn Val Val Glu Gly Lys Arg Ala Ala Lys
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Arg Ala Leu Gln Gln Lys Phe Gly Leu Gln Gln Thr Asp Val Pro Ile
850 855 860

Val Gly Ile Ile Thr Arg Leu Thr Ala Gln Lys Gly Ile His Leu Ile
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Lys His Ala Ile His Arg Thr Leu Glu Ser Asn Gly Gln Val Val Leu
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Leu Gly Ser Ala Pro Asp His Arg Ile Gln Gly Asp Phe Cys Arg Leu
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Ala Asp Ala Leu His Gly Val Tyr His Gly Arg Val Lys Leu Val Leu
915 920 925

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930 935 940

Ile Ile Val Pro Ser Ile Phe Glu Pro Cys Gly Leu Thr Gln Leu Val
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Tyr Asp Thr Val Phe Asp Val Asp Asn Asp Lys Asp Arg Ala Arg Ser
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Leu Gly Leu Glu Pro Asn Gly Phe Ser Phe Asp Gly Ala Asp Ser Asn
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Gly Val Asp Tyr Ala Leu Asn Arg Ala Ile Gly Ala Trp Phe Asp
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Ala Arg Asp Trp Phe His Ser Leu Cys Lys Arg Val Met Glu Gln
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<211> 728

<212> DNA

<213> Triticum sp.

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tgagctggaa ttcatactgc ttaaaacgac gtgattttaa ttgctggaag aggtaaagaa	660
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<212> DNA

<213> Triticum sp.

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<211> 1032

<212> DNA

<213> Triticum sp.

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<211> 892

<212> DNA

<213> Triticum sp.

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<213> Triticum sp.

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Gly His Thr val Glu val Ile Leu Pro Lys Tyr
 1 5 10

<210> 41

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Peptide

<400> 41

His Asp Trp Ser Ser Ala Pro val Ala Trp Leu Tyr Lys Glu His Tyr
 1 5 10 15

<210> 42

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Peptide

<400> 42

Gly Ile Leu Asn Gly Ile Asp Pro Asp Ile Trp Asp Pro Tyr Thr Asp
1 5 10 15

<210> 43

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Peptide

<400> 43

Asp Val Pro Ile Val Gly Ile Ile Thr Arg Leu Thr Ala Gln Lys Gly
1 5 10 15

<210> 44

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Peptide

<400> 44

Asn Gly Gln Val Val Leu Leu Gly Ser Ala
1 5 10

<210> 45

<211> 27

<212> PRT

<213> Artificial Sequence

<220>

<223> Peptide

<400> 45

Ala Gly Ser Asp Phe Ile Ile Val Pro Ser Ile Phe Glu Pro Cys Gly
1 5 10 15

Leu Thr Gln Leu Val Ala Met Arg Tyr Gly Ser.
20 25

<210> 46

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Peptide

<400> 46

Thr Gly Gly Leu Val Asp Thr Val
1 5

<210> 47

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Peptide

<400> 47

Lys Thr Gly Gly Leu Gly Asp Val Ala Gly Ala
1 5 10

<210> 48

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Peptide

<400> 48

Gly His Arg Val Met Val Val Val Pro Arg Tyr
 1 5 10

<210> 49

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Peptide

<400> 49

Asn Asp Trp His Thr Ala Leu Leu Pro Val Tyr Leu Lys Ala Tyr Tyr
 1 5 10 15

<210> 50

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Peptide

<400> 50

Gly Ile Val Asn Gly Ile Asp Asn Met Glu Trp Asn Pro Glu Val Asp
 1 5 10 15

<210> 51

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Peptide

<400> 51

Asp Val Pro Leu Leu Gly Phe Ile Gly Arg Leu Asp Gly Gln Lys Gly
1 5 10 15

<210> 52

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Peptide

<400> 52

Asp Val Gln Leu Val Met Leu Gly Thr Gly
1 5 10

<210> 53

<211> 27

<212> PRT

<213> Artificial Sequence

<220>

<223> Peptide

<220>

<221> MISC_FEATURE

<222> (13)..(13)

<223> Xaa is an amino acid which is not specifically identified

<400> 53

Ala Gly Ala Asp Ala Leu Leu Met Pro Ser Arg Phe Xaa Pro Cys Gly
1 5 10 15

Leu Asn Gln Leu Tyr Ala Met Ala Tyr Gly Thr
20 25

<210> 54

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Peptide

<220>

<221> MISC_FEATURE

<222> (4)..(4)

<223> Xaa is an amino acid which is not specifically identified

<400> 54

Val Gly Gly Xaa Arg Asp Thr Val
1 5

<210> 55

<211> 1674

<212> PRT

<213> Maize SSIII

<400> 55

Met Glu Met Val Leu Arg Ser Gln Ser Pro Leu Cys Leu Arg Ser Gly
1 5 10 15

Pro Val Leu Ile Phe Arg Pro Thr Val Ala Gly Gly Gly Gly Gly Thr
20 25 30

Gln Ser Leu Leu Arg Thr Thr Arg Phe Ala Arg Arg Arg Val Ile Arg
35 40 45

Cys Val Val Ala Ser Pro Gly Cys Pro Asn Arg Lys Ser Arg Thr Ala
50 55 60

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Ser Pro Asn Val Lys Val Ala Ala Tyr Ser Asn Tyr Ala Pro Arg Leu
65 70 75 80

Leu Val Glu Ser Ser Ser Lys Lys Ser Glu His His Asp Ser Ser Arg
85 90 95

His Arg Glu Glu Thr Ile Asp Thr Tyr Asn Gly Leu Ser Gly Ser Asp
100 105 110

Ala Ala Glu Leu Thr Ser Asn Arg Asp Val Glu Ile Glu Val Asp Leu
115 120 125

Gln His Ile Ser Glu Glu Glu Leu Pro Gly Lys Val Ser Ile Asn Ala
130 135 140

Ser Leu Gly Glu Met Glu Thr Val Asp Glu Ala Glu Val Glu Glu Asp
145 150 155 160

Lys Phe Glu Val Asp Thr Ser Gly Ile Val Leu Arg Asn Val Ala Val
165 170 175

Arg Glu Val Asp Pro Lys Asp Glu His Asn Ala Lys Asp Val Phe Val
180 185 190

Val Asp Ser Ser Gly Thr Ala Pro Asp Asn Ala Ala Val Glu Glu Val
195 200 205

Val Asp Glu Ala Glu Val Glu Glu Asp Met Val Asp Val Asp Ile Leu
210 215 220

Gly Leu Asp Leu Asn Asn Ala Thr Ile Glu Glu Ile Asp Leu Met Glu
225 230 235 240

Glu Ala Leu Leu Glu Asn Phe Asp Val Asp Ser Pro Gly Asn Ala Ser
245 250 255

Ser Gly Arg Thr Tyr Gly Gly Val Asp Glu Leu Gly Glu Leu Pro Ser
260 265 270

Thr Ser Val Asp Cys Ile Ala Ile Asn Gly Lys Arg Arg Ser Leu Lys
275 280 285

Pro Lys Pro Leu Pro Ile Val Arg Phe Gln Glu Gln Glu Gln Ile Val
290 295 300

Leu Ser Ile Val Asp Glu Glu Gly Leu Ile Ala Ser Ser Cys Glu Glu
305 310 315 320

Gly Gln Pro Val Val Asp Tyr Asp Lys Gln Glu Glu Asn Ser Thr Ala
 325 330 335
 Phe Asp Glu Gln Lys Gln Leu Thr Asp Asp Phe Pro Glu Glu Gly Ile
 340 345 350
 Ser Ile Val His Phe Pro Glu Pro Asn Asn Asp Ile Val Gly Ser Ser
 355 360 365
 Lys Phe Leu Glu Gln Lys Gln Glu Leu Asp Gly Ser Tyr Lys Gln Asp
 370 375 380
 Arg Ser Thr Thr Gly Leu His Glu Gln Asp Gln Ser Val Val Ser Ser
 385 390 395 400
 His Gly Gln Asp Lys Ser Ile Val Gly Val Pro Gln Gln Ile Gln Tyr
 405 410 415
 Asn Asp Gln Ser Ile Ala Gly Ser His Arg Gln Asp Gln Ser Ile Ala
 420 425 430
 Gly Ala Pro Glu Gln Ile Gln Ser Val Ala Gly Tyr Ile Lys Pro Asn
 435 440 445
 Gln Ser Ile Val Gly Ser Cys Lys Gln His Glu Leu Ile Ile Pro Glu
 450 455 460
 Pro Lys Lys Ile Glu Ser Ile Ile Ser Tyr Asn Glu Ile Asp Gln Ser
 465 470 475 480
 Ile Val Gly Ser His Lys Gln Asp Lys Ser Val Val Ser Val Pro Glu
 485 490 495
 Gln Ile Gln Ser Ile Val Ser His Ser Lys Pro Asn Gln Ser Thr Val
 500 505 510
 Asp Ser Tyr Arg Gln Ala Glu Ser Ile Ile Gly Val Pro Glu Lys Val
 515 520 525
 Gln Ser Ile Thr Ser Tyr Asp Lys Leu Asp Gln Ser Ile Val Gly Ser
 530 535 540
 Leu Lys Gln Asp Glu Pro Ile Ile Ser Val Pro Glu Lys Ile Gln Ser
 545 550 555 560
 Ile Val His Tyr Thr Lys Pro Asn Gln Ser Ile Val Gly Leu Pro Lys
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565

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570

575

Gln Gln Gln Ser Ile Val His Ile Val Glu Pro Lys Gln Ser Ile Asp
580 585 590

Gly Phe Pro Lys Gln Asp Leu Ser Ile Val Gly Ile Ser Asn Glu Phe
595 600 605

Gln Thr Lys Gln Leu Ala Thr Val Gly Thr His Asp Gly Leu Leu Met
610 615 620

Lys Gly Val Glu Ala Lys Glu Thr Ser Gln Lys Thr Glu Gly Asp Thr
625 630 635 640

Leu Gln Ala Thr Phe Asn Val Asp Asn Leu Ser Gln Lys Gln Glu Gly
645 650 655

Leu Thr Lys Glu Ala Asp Glu Ile Thr Ile Ile Glu Lys Ile Asn Asp
660 665 670

Glu Asp Leu Val Met Ile Glu Glu Gln Lys Ser Ile Ala Met Asn Glu
675 680 685

Glu Gln Thr Ile Val Thr Glu Glu Asp Ile Pro Met Ala Lys Val Glu
690 695 700

Ile Gly Ile Asp Lys Ala Lys Phe Leu His Leu Leu Ser Glu Glu Glu
705 710 715 720

Ser Ser Trp Asp Glu Asn Glu Val Gly Ile Ile Glu Ala Asp Glu Gln
725 730 735

Tyr Glu Val Asp Glu Thr Ser Met Ser Thr Glu Gln Asp Ile Gln Glu
740 745 750

Ser Pro Asn Asp Asp Leu Asp Pro Gln Ala Leu Trp Ser Met Leu Gln
755 760 765

Glu Leu Ala Glu Lys Asn Tyr Ser Leu Gly Asn Lys Leu Phe Thr Tyr
770 775 780

Pro Asp Val Leu Lys Ala Asp Ser Thr Ile Asp Leu Tyr Phe Asn Arg
785 790 795 800

Asp Leu Ser Ala Val Ala Asn Glu Pro Asp Val Leu Ile Lys Gly Ala
805 810 815

Phe Asn Gly Trp Lys Trp Arg Phe Phe Thr Glu Lys Leu His Lys Ser
 820 825 830
 Glu Leu Ala Gly Asp Trp Trp Cys Cys Lys Leu Tyr Ile Pro Lys Gln
 835 840 845
 Ala Tyr Arg Met Asp Phe Val Phe Phe Asn Gly His Thr Val Tyr Glu
 850 855 860
 Asn Asn Asn Asn Asn Asp Phe Val Ile Gln Ile Glu Ser Thr Met Asp
 865 870 875 880
 Glu Asn Leu Phe Glu Asp Phe Leu Ala Glu Glu Lys Gln Arg Glu Leu
 885 890 895
 Glu Asn Leu Ala Asn Glu Glu Ala Glu Arg Arg Arg Gln Thr Asp Glu
 900 905 910
 Gln Arg Arg Met Glu Glu Glu Arg Ala Ala Asp Lys Ala Asp Arg Val
 915 920 925
 Gln Ala Lys Val Glu Val Glu Thr Lys Lys Asn Lys Leu Cys Asn Val
 930 935 940
 Leu Gly Leu Ala Arg Ala Pro Val Asp Asn Leu Trp Tyr Ile Glu Pro
 945 950 955 960
 Ile Thr Thr Gly Gln Glu Ala Thr Val Arg Leu Tyr Tyr Asn Ile Asn
 965 970 975
 Ser Arg Pro Leu Val His Ser Thr Glu Ile Trp Met His Gly Gly Tyr
 980 985 990
 Asn Asn Trp Ile Asp Gly Leu Ser Phe Ala Glu Arg Leu Val His His
 995 1000 1005
 His Asp Lys Asp Cys Asp Trp Trp Phe Ala Asp Val Val Val Pro
 1010 1015 1020
 Glu Arg Thr Tyr Val Leu Asp Trp Val Phe Ala Asp Gly Pro Pro
 1025 1030 1035
 Gly Ser Ala Arg Asn Tyr Asp Asn Asn Gly Gly His Asp Phe His
 1040 1045 1050
 Ala Thr Leu Pro Asn Asn Met Thr Glu Glu Glu Tyr Trp Met Glu
 1055 1060 1065

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Glu Glu Gln Arg Ile Tyr Thr Arg Leu Gln Gln Glu Arg Arg Glu
 1070 1075 1080
 Arg Glu Glu Ala Ile Lys Arg Lys Ala Glu Arg Asn Ala Lys Met
 1085 1090 1095
 Lys Ala Glu Met Lys Glu Lys Thr Met Arg Met Phe Leu Val Ser
 1100 1105 1110
 Gln Lys His Ile Val Tyr Thr Glu Pro Leu Glu Ile His Ala Gly
 1115 1120 1125
 Thr Thr Ile Asp Val Leu Tyr Asn Pro Ser Asn Thr Val Leu Thr
 1130 1135 1140
 Gly Lys Pro Glu Val Trp Phe Arg Cys Ser Phe Asn Arg Trp Met
 1145 1150 1155
 Tyr Pro Gly Gly Val Leu Pro Pro Gln Lys Met Val Gln Ala Glu
 1160 1165 1170
 Asn Gly Ser His Leu Lys Ala Thr Val Tyr Val Pro Arg Asp Ala
 1175 1180 1185
 Tyr Met Met Asp Phe Val Phe Ser Glu Ser Glu Glu Gly Gly Ile
 1190 1195 1200
 Tyr Asp Asn Arg Asn Gly Leu Asp Tyr His Ile Pro Val Phe Gly
 1205 1210 1215
 Ser Ile Ala Lys Glu Pro Pro Met His Ile Val His Ile Ala Val
 1220 1225 1230
 Glu Met Ala Pro Ile Ala Lys Val Gly Gly Leu Gly Asp Val Val
 1235 1240 1245
 Thr Ser Leu Ser Arg Ala Val Gln Asp Leu Gly His Asn Val Glu
 1250 1255 1260
 Val Ile Leu Pro Lys Tyr Gly Cys Leu Asn Leu Ser Asn Val Lys
 1265 1270 1275
 Asn Leu Gln Ile His Gln Ser Phe Ser Trp Gly Gly Ser Glu Ile
 1280 1285 1290
 Asn Val Trp Arg Gly Leu Val Glu Gly Leu Cys Val Tyr Phe Leu
 1295 1300 1305

Glu Pro Gln Asn Gly Met Phe Gly Val Gly Tyr Val Tyr Gly Arg
 1310 1315 1320
 Asp Asp Asp Arg Arg Phe Gly Phe Phe Cys Arg Ser Ala Leu Glu
 1325 1330 1335
 Phe Leu Leu Gln Ser Gly Ser Ser Pro Asn Ile Ile His Cys His
 1340 1345 1350
 Asp Trp Ser Ser Ala Pro Val Ala Trp Leu His Lys Glu Asn Tyr
 1355 1360 1365
 Ala Lys Ser Ser Leu Ala Asn Ala Arg Val Val Phe Thr Ile His
 1370 1375 1380
 Asn Leu Glu Phe Gly Ala His His Ile Gly Lys Ala Met Arg Tyr
 1385 1390 1395
 Cys Asp Lys Ala Thr Thr Val Ser Asn Thr Tyr Ser Lys Glu Val
 1400 1405 1410
 Ser Gly His Gly Ala Ile Val Pro His Leu Gly Lys Phe Tyr Gly
 1415 1420 1425
 Ile Leu Asn Gly Ile Asp Pro Asp Ile Trp Asp Pro Tyr Asn Asp
 1430 1435 1440
 Asn Phe Ile Pro Val His Tyr Thr Cys Glu Asn Val Val Glu Gly
 1445 1450 1455
 Lys Arg Ala Ala Lys Arg Ala Leu Gln Gln Lys Phe Gly Leu Gln
 1460 1465 1470
 Gln Ile Asp Val Pro Val Val Gly Ile Val Thr Arg Leu Thr Ala
 1475 1480 1485
 Gln Lys Gly Ile His Leu Ile Lys His Ala Ile His Arg Thr Leu
 1490 1495 1500
 Glu Arg Asn Gly Gln Val Val Leu Leu Gly Ser Ala Pro Asp Ser
 1505 1510 1515
 Arg Ile Gln Ala Asp Phe Val Asn Leu Ala Asn Thr Leu His Gly
 1520 1525 1530
 Val Asn His Gly Gln Val Arg Leu Ser Leu Thr Tyr Asp Glu Pro
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1535

1540

1545

Leu Ser His Leu Ile Tyr Ala Gly Ser Asp Phe Ile Leu Val Pro
 1550 1555 1560

Ser Ile Phe Glu Pro Cys Gly Leu Thr Gln Leu Val Ala Met Arg
 1565 1570 1575

Tyr Gly Thr Ile Pro Ile Val Arg Lys Thr Gly Gly Leu Phe Asp
 1580 1585 1590

Thr Val Phe Asp Val Asp Asn Asp Lys Glu Arg Ala Arg Asp Arg
 1595 1600 1605

Gly Leu Glu Pro Asn Gly Phe Ser Phe Asp Gly Ala Asp Ser Asn
 1610 1615 1620

Gly Val Asp Tyr Ala Leu Asn Arg Ala Ile Ser Ala Trp Phe Asp
 1625 1630 1635

Ala Arg Ser Trp Phe His Ser Leu Cys Lys Arg Val Met Glu Gln
 1640 1645 1650

Asp Trp Ser Trp Asn Arg Pro Ala Leu Asp Tyr Ile Glu Leu Tyr
 1655 1660 1665

Arg Ser Ala Ser Lys Leu
 1670

<210> 56

<211> 1230

<212> PRT

<213> Potato SSIII

<400> 56

Met Asp Val Pro Phe Pro Leu His Arg Ser Leu Ser Cys Thr Ser Val
 1 5 10 15

Ser Asn Ala Ile Thr His Leu Lys Ile Lys Pro Ile Leu Gly Phe Val
 20 25 30

Ser His Gly Thr Thr Ser Leu Ser Val Gln Ser Ser Ser Trp Arg Lys
 35 40 45

Asp Gly Met Val Thr Gly Val Ser Phe Ser Ile Cys Ala Asn Phe Ser
 50 55 60
 Gly Arg Arg Arg Arg Lys Val Ser Thr Pro Arg Ser Gln Gly Ser Ser
 65 70 75 80
 Pro Lys Gly Phe Val Pro Arg Lys Pro Ser Gly Met Ser Thr Gln Arg
 85 90 95
 Lys Val Gln Lys Ser Asn Gly Asp Lys Glu Ser Lys Ser Thr Ser Thr
 100 105 110
 Ser Lys Glu Ser Glu Ile Ser Asn Gln Lys Thr Val Glu Ala Arg Val
 115 120 125
 Glu Thr Ser Asp Asp Asp Thr Lys Gly Val Val Arg Asp His Lys Phe
 130 135 140
 Leu Glu Asp Glu Asp Glu Ile Asn Gly Ser Thr Lys Ser Ile Ser Met
 145 150 155 160
 Ser Pro Val Arg Val Ser Ser Gln Phe Val Glu Ser Glu Glu Thr Gly
 165 170 175
 Gly Asp Asp Lys Asp Ala Val Lys Leu Asn Lys Ser Lys Arg Ser Glu
 180 185 190
 Glu Ser Gly Phe Ile Ile Asp Ser Val Ile Arg Glu Gln Ser Gly Ser
 195 200 205
 Gln Gly Glu Thr Asn Ala Ser Ser Lys Gly Ser His Ala Val Gly Thr
 210 215 220
 Lys Leu Tyr Glu Ile Leu Gln Val Asp Val Glu Pro Gln Gln Leu Lys
 225 230 235 240
 Glu Asn Asn Ala Gly Asn Val Glu Tyr Lys Gly Pro Val Ala Ser Lys
 245 250 255
 Leu Leu Glu Ile Thr Lys Ala Ser Asp Val Glu His Thr Glu Ser Asn
 260 265 270
 Glu Ile Asp Asp Leu Asp Thr Asn Ser Phe Phe Lys Ser Asp Leu Ile
 275 280 285
 Glu Glu Asp Glu Pro Leu Ala Ala Gly Thr Val Glu Thr Gly Asp Ser
 290 295 300

Ser Leu Asn Leu Arg Leu Glu Met Glu Ala Asn Leu Arg Arg Gln Ala
 305 310 315 320
 Ile Glu Arg Leu Ala Glu Glu Asn Leu Leu Gln Gly Ile Arg Leu Phe
 325 330 335
 Cys Phe Pro Glu Val Val Lys Pro Asp Glu Asp Val Glu Ile Phe Leu
 340 345 350
 Asn Arg Gly Leu Ser Thr Leu Lys Asn Glu Ser Asp Val Leu Ile Met
 355 360 365
 Gly Ala Phe Asn Glu Trp Arg Tyr Arg Ser Phe Thr Thr Arg Leu Thr
 370 375 380
 Glu Thr His Leu Asn Gly Asp Trp Trp Ser Cys Lys Ile His Val Pro
 385 390 395 400
 Lys Glu Ala Tyr Arg Ala Asp Phe Val Phe Phe Asn Gly Gln Asp Val
 405 410 415
 Tyr Asp Asn Asn Asp Gly Asn Asp Phe Ser Ile Thr Val Lys Gly Gly
 420 425 430
 Met Gln Ile Ile Asp Phe Glu Asn Phe Leu Leu Glu Glu Lys Trp Arg
 435 440 445
 Glu Gln Glu Lys Leu Ala Lys Glu Gln Ala Glu Arg Glu Arg Leu Ala
 450 455 460
 Glu Glu Gln Arg Arg Ile Glu Ala Glu Lys Ala Glu Ile Glu Ala Asp
 465 470 475 480
 Arg Ala Gln Ala Lys Glu Glu Ala Ala Lys Lys Lys Lys Val Leu Arg
 485 490 495
 Glu Leu Met Val Lys Ala Thr Lys Thr Arg Asp Ile Thr Trp Tyr Ile
 500 505 510
 Glu Pro Ser Glu Phe Lys Cys Glu Asp Lys Val Arg Leu Tyr Tyr Asn
 515 520 525
 Lys Ser Ser Gly Pro Leu Ser His Ala Lys Asp Leu Trp Ile His Gly
 530 535 540
 Gly Tyr Asn Asn Trp Lys Asp Gly Leu Ser Ile Val Lys Lys Leu Val
 545 550 555 560

Lys Ser Glu Arg Ile Asp Gly Asp Trp Trp Tyr Thr Glu Val Val Ile
 565 570 575
 Pro Asp Gln Ala Leu Phe Leu Asp Trp Val Phe Ala Asp Gly Pro Pro
 580 585 590
 Lys His Ala Ile Ala Tyr Asp Asn Asn His Arg Gln Asp Phe His Ala
 595 600 605
 Ile Val Pro Asn His Ile Pro Glu Glu Leu Tyr Trp Val Glu Glu Glu
 610 615 620
 His Gln Ile Phe Lys Thr Leu Gln Glu Glu Arg Arg Leu Arg Glu Ala
 625 630 635 640
 Ala Met Arg Ala Lys Val Glu Lys Thr Ala Leu Leu Lys Thr Glu Thr
 645 650 655
 Lys Glu Arg Thr Met Lys Ser Phe Leu Leu Ser Gln Lys His Val Val
 660 665 670
 Tyr Thr Glu Pro Leu Asp Ile Gln Ala Gly Ser Ser Val Thr Val Tyr
 675 680 685
 Tyr Asn Pro Ala Asn Thr Val Leu Asn Gly Lys Pro Glu Ile Trp Phe
 690 695 700
 Arg Cys Ser Phe Asn Arg Trp Thr His Arg Leu Gly Pro Leu Pro Pro
 705 710 715 720
 Gln Lys Met Ser Pro Ala Glu Asn Gly Thr His Val Arg Ala Thr Val
 725 730 735
 Lys Val Pro Leu Asp Ala Tyr Met Met Asp Phe Val Phe Ser Glu Arg
 740 745 750
 Glu Asp Gly Gly Ile Phe Asp Asn Lys Ser Gly Met Asp Tyr His Ile
 755 760 765
 Pro Val Phe Gly Gly Val Ala Lys Glu Pro Pro Met His Ile Val His
 770 775 780
 Ile Ala Val Glu Met Ala Pro Ile Ala Lys Val Gly Gly Leu Gly Asp
 785 790 795 800
 Val Val Thr Ser Leu Ser Arg Ala Val Gln Asp Leu Asn His Asn Val
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Asp Ile Ile Leu Pro Lys Tyr Asp Cys Leu Lys Met Asn Asn Val Lys
820 825 830

Asp Phe Arg Phe His Lys Asn Tyr Phe Trp Gly Gly Thr Glu Ile Lys
835 840 845

Val Trp Phe Gly Lys Val Glu Gly Leu Ser Val Tyr Phe Leu Glu Pro
850 855 860

Gln Asn Gly Leu Phe Ser Lys Gly Cys Val Tyr Gly Cys Ser Asn Asp
865 870 875 880

Gly Glu Arg Phe Gly Phe Phe Cys His Ala Ala Leu Glu Phe Leu Leu
885 890 895

Gln Gly Gly Phe Ser Pro Asp Ile Ile His Cys His Asp Trp Ser Ser
900 905 910

Ala Pro Val Ala Trp Leu Phe Lys Glu Gln Tyr Thr His Tyr Gly Leu
915 920 925

Ser Lys Ser Arg Ile Val Phe Thr Ile His Asn Leu Glu Phe Gly Ala
930 935 940

Asp Leu Ile Gly Arg Ala Met Thr Asn Ala Asp Lys Ala Thr Thr Val
945 950 955 960

Ser Pro Thr Tyr Ser Gln Glu Val Ser Gly Asn Pro Val Ile Ala Pro
965 970 975

His Leu His Lys Phe His Gly Ile Val Asn Gly Ile Asp Pro Asp Ile
980 985 990

Trp Asp Pro Leu Asn Asp Lys Phe Ile Pro Ile Pro Tyr Thr Ser Glu
995 1000 1005

Asn Val Val Glu Gly Lys Thr Ala Ala Lys Glu Ala Leu Gln Arg
1010 1015 1020

Lys Leu Gly Leu Lys Gln Ala Asp Leu Pro Leu Val Gly Ile Ile
1025 1030 1035

Thr Arg Leu Thr His Gln Lys Gly Ile His Leu Ile Lys His Ala
1040 1045 1050

Ile Trp Arg Thr Leu Glu Arg Asn Gly Gln Val Val Leu Leu Gly
1055 1060 1065

Ser Ala Pro Asp Pro Arg Val Gln Asn Asn Phe Val Asn Leu Ala
1070 1075 1080

Asn Gln Leu His Ser Lys Tyr Asn Asp Arg Ala Arg Leu Cys Leu
1085 1090 1095

Thr Tyr Asp Glu Pro Leu Ser His Leu Ile Tyr Ala Gly Ala Asp
1100 1105 1110

Phe Ile Leu Val Pro Ser Ile Phe Glu Pro Cys Gly Leu Thr Gln
1115 1120 1125

Leu Thr Ala Met Arg Tyr Gly Ser Ile Pro Val Val Arg Lys Thr
1130 1135 1140

Gly Gly Leu Tyr Asp Thr Val Phe Asp Val Asp His Asp Lys Glu
1145 1150 1155

Arg Ala Gln Gln Cys Gly Leu Glu Pro Asn Gly Phe Ser Phe Asp
1160 1165 1170

Gly Ala Asp Ala Gly Gly Val Asp Tyr Ala Leu Asn Arg Ala Leu
1175 1180 1185

Ser Ala Trp Tyr Asp Gly Arg Asp Trp Phe Asn Ser Leu Cys Lys
1190 1195 1200

Gln Val Met Glu Gln Asp Trp Ser Trp Asn Arg Pro Ala Leu Asp
1205 1210 1215

Tyr Leu Glu Leu Tyr His Ala Ala Arg Lys Leu Glu
1220 1225 1230

<210> 57

<211> 615

<212> PRT

<213> wheat WGBSS

<400> 57

Met Ala Ala Leu Val Thr Ser Gln Leu Ala Thr Ser Gly Thr Val Leu
1 5 10 15

Ser Val Thr Asp Arg Phe Arg Arg Pro Gly Phe Gln Gly Leu Arg Pro
 20 25 30
 Arg Asn Pro Ala Asp Ala Ala Leu Gly Met Arg Thr Val Gly Ala Ser
 35 40 45
 Ala Ala Pro Lys Gln Ser Arg Lys Pro His Arg Phe Asp Arg Arg Cys
 50 55 60
 Leu Ser Met Val Val Arg Ala Thr Gly Ser Gly Gly Met Asn Leu Val
 65 70 75 80
 Phe Val Gly Ala Glu Met Ala Pro Trp Ser Lys Thr Gly Gly Leu Gly
 85 90 95
 Asp Val Leu Gly Gly Leu Pro Ala Ala Met Ala Ala Asn Gly His Arg
 100 105 110
 Val Met Val Ile Ser Pro Arg Tyr Asp Gln Tyr Lys Asp Ala Trp Asp
 115 120 125
 Thr Ser Val Ile Ser Glu Ile Lys Val Val Asp Arg Tyr Glu Arg Val
 130 135 140
 Arg Tyr Phe His Cys Tyr Lys Arg Gly Val Asp Arg Val Phe Val Asp
 145 150 155 160
 His Pro Cys Phe Leu Glu Lys Val Arg Gly Lys Thr Lys Glu Lys Ile
 165 170 175
 Tyr Gly Pro Asp Ala Gly Thr Asp Tyr Glu Asp Asn Gln Gln Arg Phe
 180 185 190
 Ser Leu Leu Cys Gln Ala Ala Leu Glu Val Pro Arg Ile Leu Asp Leu
 195 200 205
 Asn Asn Asn Pro His Phe Ser Gly Pro Tyr Ala Met Leu Cys Arg Ala
 210 215 220
 Val Pro Arg Arg Ala Gly Glu Asp Val Val Phe Val Cys Asn Asp Trp
 225 230 235 240
 His Thr Gly Leu Leu Ala Cys Tyr Leu Lys Ser Asn Tyr Gln Ser Asn
 245 250 255
 Gly Ile Tyr Arg Thr Ala Lys Val Ala Phe Cys Ile His Asn Ile Ser
 260 265 270

Tyr Gln Gly Arg Phe Ser Phe Asp Asp Phe Ala Gln Leu Asn Leu Pro
 275 280 285

Asp Arg Phe Lys Ser Ser Phe Asp Phe Ile Asp Gly Tyr Asp Lys Pro
 290 295 300

Val Glu Gly Arg Lys Ile Asn Trp Met Lys Ala Gly Ile Leu Gln Ala
 305 310 315 320

Asp Lys Val Leu Thr Val Ser Pro Tyr Tyr Ala Glu Glu Leu Ile Ser
 325 330 335

Gly Glu Ala Arg Gly Cys Glu Leu Asp Asn Ile Met Arg Leu Thr Gly
 340 345 350

Ile Thr Gly Ile Val Asn Gly Met Asp Val Ser Glu Trp Asp Pro Ile
 355 360 365

Lys Asp Lys Phe Leu Thr Val Asn Tyr Asp Val Thr Thr Ala Leu Glu
 370 375 380

Gly Lys Ala Leu Asn Lys Glu Ala Leu Gln Ala Glu Val Gly Leu Pro
 385 390 395 400

Val Asp Arg Lys Val Pro Leu Val Ala Phe Ile Gly Arg Leu Glu Glu
 405 410 415

Gln Lys Gly Pro Asp Val Met Ile Ala Ala Ile Pro Glu Ile Val Lys
 420 425 430

Glu Glu Asp Val Gln Ile Val Leu Leu Gly Thr Gly Lys Lys Lys Phe
 435 440 445

Glu Arg Leu Leu Lys Ser Val Glu Glu Lys Phe Pro Thr Lys Val Arg
 450 455 460

Ala Val Val Arg Phe Asn Ala Pro Leu Ala His Gln Met Met Ala Gly
 465 470 475 480

Ala Asp Val Leu Ala Val Thr Ser Arg Phe Glu Pro Cys Gly Leu Ile
 485 490 495

Gln Leu Gln Gly Met Arg Tyr Gly Thr Pro Cys Ala Cys Ala Ser Thr
 500 505 510

Gly Gly Leu Val Asp Thr Ile Val Glu Gly Lys Thr Gly Phe His Met
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Gly Arg Leu Ser Val Asp Cys Asn Val Val Glu Pro Ala Asp Val Lys
530 535 540

Lys Val Val Thr Thr Leu Lys Arg Ala Val Lys Val Val Gly Thr Pro
545 550 555 560

Ala Tyr His Glu Met Val Lys Asn Cys Met Ile Gln Asp Leu Ser Trp
565 570 575

Lys Gly Pro Ala Lys Asn Trp Glu Asp Val Leu Leu Glu Leu Gly Val
580 585 590

Glu Gly Ser Glu Pro Gly Ile Val Gly Glu Glu Ile Ala Pro Leu Ala
595 600 605

Leu Glu Asn Val Ala Ala Pro
610 615

<210> 58

<211> 647

<212> PRT

<213> Wheat wss1

<400> 58

Met Ala Ala Thr Gly Val Gly Ala Gly Cys Leu Ala Pro Ser Val Arg
1 5 10 15

Leu Arg Ala Asp Pro Ala Thr Ala Ala Arg Ala Ser Ala Cys Val Val
20 25 30

Arg Ala Arg Leu Arg Arg Leu Ala Arg Gly Arg Tyr Val Ala Glu Leu
35 40 45

Ser Arg Glu Gly Pro Ala Ala Arg Pro Ala Gln Gln Gln Gln Leu Ala
50 55 60

Pro Pro Leu Val Pro Gly Phe Leu Ala Pro Pro Pro Pro Ala Pro Ala
65 70 75 80

Gln Ser Pro Ala Pro Thr Gln Pro Pro Leu Pro Asp Ala Gly Val Gly
85 90 95

Glu Leu Ala Pro Asp Leu Leu Leu Glu Gly Ile Ala Glu Asp Ser Ile
 100 105 110
 Asp Ser Ile Ile Val Ala Ala Ser Glu Gln Asp Ser Glu Ile Met Asp
 115 120 125
 Ala Asn Glu Gln Pro Gln Ala Lys Val Thr Arg Ser Ile Val Phe Val
 130 135 140
 Thr Gly Glu Ala Ala Pro Tyr Ala Lys Ser Gly Gly Leu Gly Asp Val
 145 150 155 160
 Cys Gly Ser Leu Pro Ile Ala Leu Ala Ala Arg Gly His Arg Val Met
 165 170 175
 Val Val Met Pro Arg Tyr Leu Asn Gly Ser Ser Asp Lys Asn Tyr Ala
 180 185 190
 Lys Ala Leu Tyr Thr Gly Lys His Ile Lys Ile Pro Cys Phe Gly Gly
 195 200 205
 Ser His Glu Val Thr Phe Phe His Glu Tyr Arg Asp Asn Val Asp Trp
 210 215 220
 Val Phe Val Asp His Pro Ser Tyr His Arg Pro Gly Ser Leu Tyr Gly
 225 230 235 240
 Asp Asn Phe Gly Ala Phe Gly Asp Asn Gln Phe Arg Tyr Thr Leu Leu
 245 250 255
 Cys Tyr Ala Ala Cys Glu Ala Pro Leu Ile Leu Glu Leu Gly Gly Tyr
 260 265 270
 Ile Tyr Gly Gln Asn Cys Met Phe Val Val Asn Asp Trp His Ala Ser
 275 280 285
 Leu Val Pro Val Leu Leu Ala Ala Lys Tyr Arg Pro Tyr Gly Val Tyr
 290 295 300
 Arg Asp Ser Arg Ser Thr Leu Val Ile His Asn Leu Ala His Gln Gly
 305 310 315 320
 Leu Glu Pro Ala Ser Thr Tyr Pro Asp Leu Gly Leu Pro Pro Glu Trp
 325 330 335
 Tyr Gly Ala Leu Glu Trp Val Phe Pro Glu Trp Ala Arg Arg His Ala
 340 345 350

Leu Asp Lys Gly Glu Ala Val Asn Phe Leu Lys Gly Ala Val Val Thr
 355 360 365
 Ala Asp Arg Ile Val Thr Val Ser Gln Gly Tyr Ser Trp Glu Val Thr
 370 375 380
 Thr Ala Glu Gly Gly Gln Gly Leu Asn Glu Leu Leu Ser Ser Arg Lys
 385 390 395
 Ser Val Leu Asn Gly Ile Val Asn Gly Ile Asp Ile Asn Asp Trp Asn
 405 410 415
 Pro Thr Thr Asp Lys Cys Leu Pro His His Tyr Ser Val Asp Asp Leu
 420 425 430
 Ser Gly Lys Ala Lys Cys Lys Ala Glu Leu Gln Lys Glu Leu Gly Leu
 435 440 445
 Pro Val Arg Glu Asp Val Pro Leu Ile Gly Phe Ile Gly Arg Leu Asp
 450 455 460
 Tyr Gln Lys Gly Ile Asp Leu Ile Lys Met Ala Ile Pro Glu Leu Met
 465 470 475 480
 Arg Glu Asp Val Gln Phe Val Met Leu Gly Ser Gly Asp Pro Ile Phe
 485 490 495
 Glu Gly Trp Met Arg Ser Thr Glu Ser Ser Tyr Lys Asp Lys Phe Arg
 500 505 510
 Gly Trp Val Gly Phe Ser Val Pro Val Ser His Arg Ile Thr Ala Gly
 515 520 525
 Cys Asp Ile Leu Leu Met Pro Ser Arg Phe Glu Pro Cys Gly Leu Asn
 530 535 540
 Gln Leu Tyr Ala Met Gln Tyr Gly Thr Val Pro Val Val His Gly Thr
 545 550 555 560
 Gly Gly Leu Arg Asp Thr Val Glu Thr Phe Asn Pro Phe Gly Ala Lys
 565 570 575
 Gly Glu Glu Gly Thr Gly Trp Ala Phe Ser Pro Leu Thr Val Asp Lys
 580 585 590
 Met Leu Trp Ala Leu Arg Thr Ala Met Ser Thr Phe Arg Glu His Lys
 595 600 605

Pro Ser Trp Glu Gly Leu Met Lys Arg Gly Met Thr Lys Asp His Thr
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Trp Asp His Ala Ala Glu Gln Tyr Glu Gln Ile Phe Glu Trp Ala Phe
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Val Asp Gln Pro Tyr Val Met
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Pro Val Asn Gly Glu Asn Lys
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